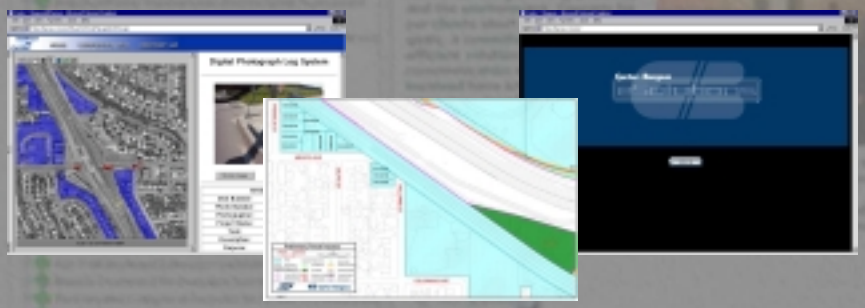
Design and Deployment of Internet-Based GIS Tools for the Southeast Corridor Parcel Acquisition and Right-of-Way Management



Matt Erker, Ken Carlson and Philip Lidov

Carter-Burgess

Outline

- Project Description
- Problem Statement
- Requirements
- Solution
- Future Development
- Summary

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Project Description

- Purpose
  - Combines highway and transit elements
  - LRT along I-25 and I-225
  - Additional highway lanes and improvements on I-25 and I-225
  - Links two regional employment centers

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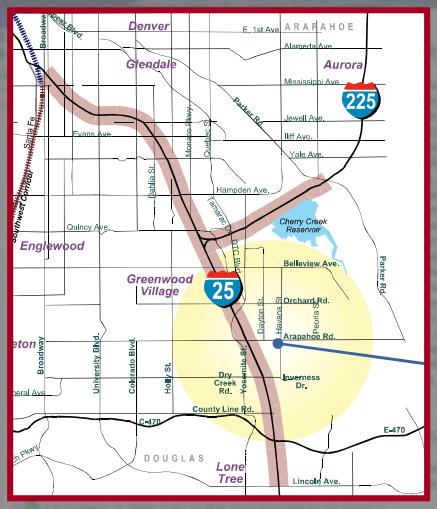
Project Description



- Purpose
- Limit

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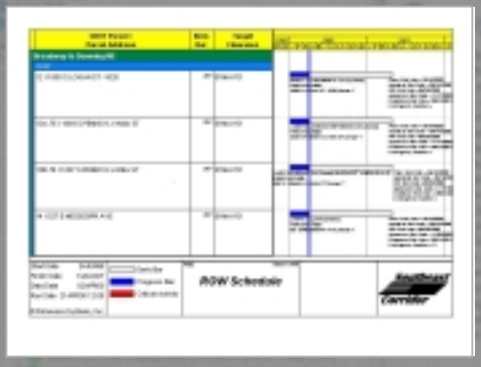
Project Description

- Purpose
- Limit
- Project Team
  - Carter & Burgess
  - RTD
  - CDOT
  - FHWA
  - FTA
  - Cities and Counties
  - Design/Builders

Project Description



- Purpose
- Limit
- Project Team
- Schedule
  - NTP by summer 2001
  - ROW acquisition is critical path

Project Description

- Purpose
- Limit
- Project Team
- Schedule
- Critical Elements
  - 19 miles long
  - 900 adjoining properties
  - Design/Build
  - ROW Acquisition

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Objective

To ensure the successful completion of the project, the Carter & Burgess Survey Unit needed to establish a procedure that integrated an expedited acquisition process with the design/build approach.

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Requirements

- Data
  - Complex spatial and relational data
  - Longevity
  - Progressive accuracy
  - Live updates
- Users
  - Accessible to extended project team
  - User friendly/technically complete
  - Secure
- Output
  - Integrated with project schedule
  - Flexible/Customizable
  - Map-based

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Requirements

	Technical Approach
• Data	
– Complex spatial and relational data	Relational DB and GIS
– Longevity	Relational DB
– Progressive accuracy	GIS
– Live updates	Relational DB
• Users	
– Accessible to extended project team	Web-based
– User friendly/technically complete	Custom application
– Secure	Custom application
• Output	
– Integrated with project schedule	Custom application
– Flexible/Customizable	Custom application
– Map-based	Mapping Tools

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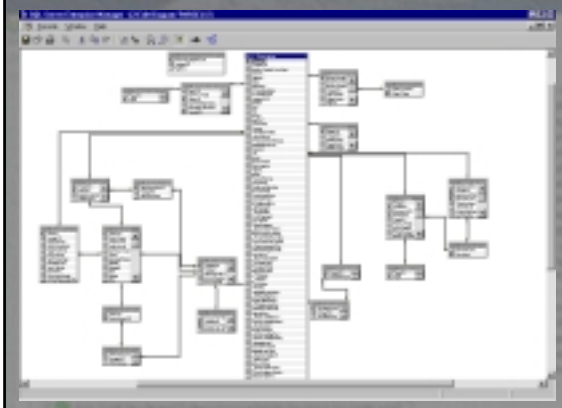
Solution



- Relational Database
  - MS SQL Server 7.0
  - Relational table structure
    - Users
    - Projects
    - Parcels
    - Parties (Owners)
    - ROEs
    - Titles
    - Appraisals
  - Stored Procedures

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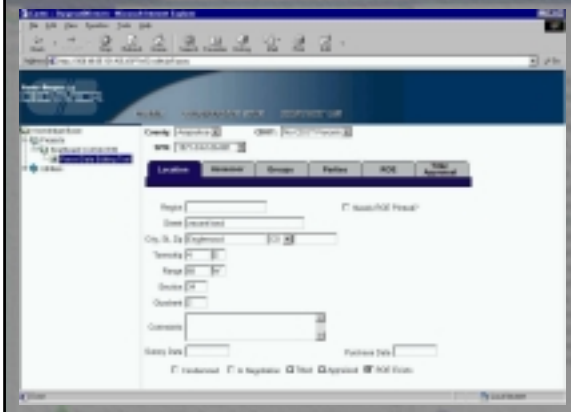
Solution



- Relational Database
- ParcelView
  - Technical Design
    - VB Webclass
    - Stateless
    - Data Environment Designer
    - HTML Forms
    - Microsoft Transaction Server

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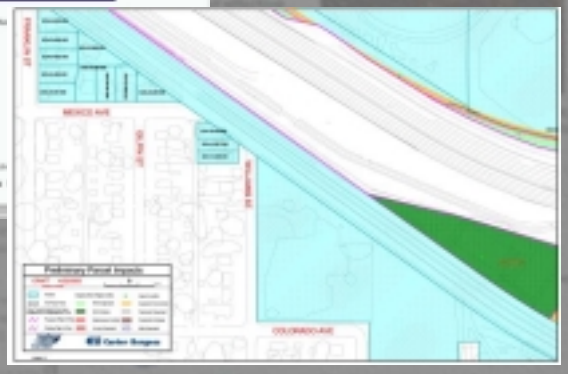
Solution



- Relational Database
- ParcelView
  - Technical Design
  - Location

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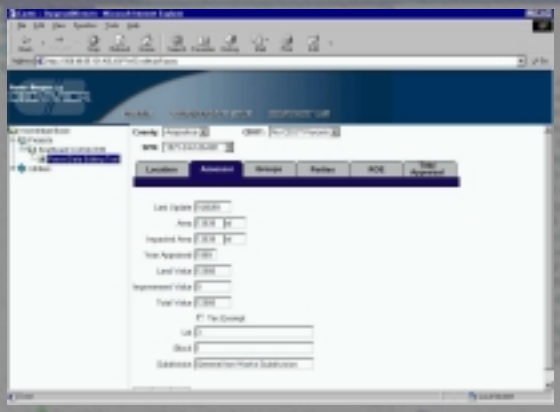
Solution



- Relational Database
- ParcelView
  - Technical Design
  - Location
  - Assessor

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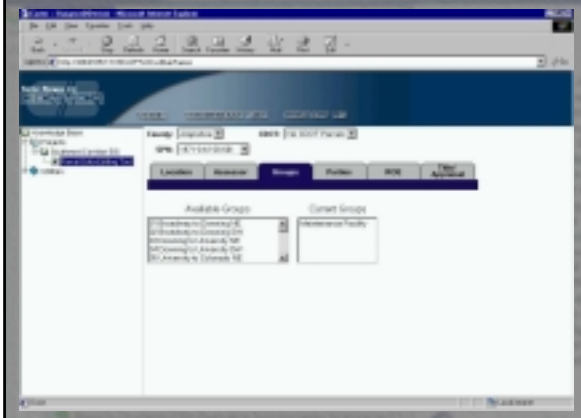
Solution



- Relational Database
- ParcelView
  - Technical Design
  - Location
  - Assessor
  - Groups

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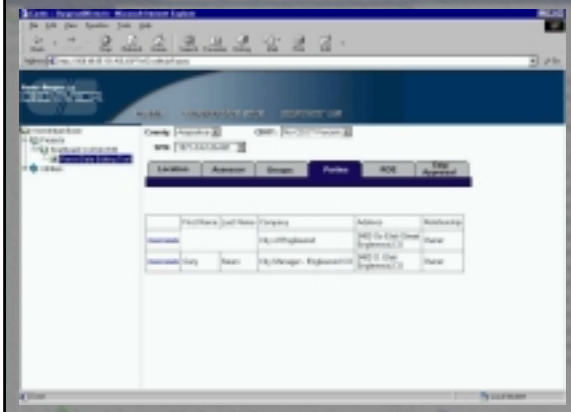
Solution



- Relational Database
- ParcelView
  - Technical Design
  - Location
  - Assessor
  - Groups
  - Parties

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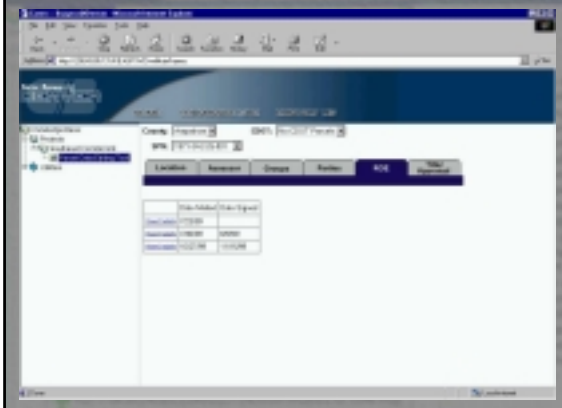
Solution



- Relational Database
- ParcelView
  - Technical Design
  - Location
  - Assessor
  - Groups
  - Parties
  - ROE

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Solution

- Relational Database
- ParcelView
  - Technical Design
  - Location
  - Assessor
  - Groups
  - Parties
  - ROE

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Solution

- Relational Database
- ParcelView
  - Technical Design
  - Location
  - Assessor
  - Groups
  - Parties
  - ROE
  - Title/Appraisal

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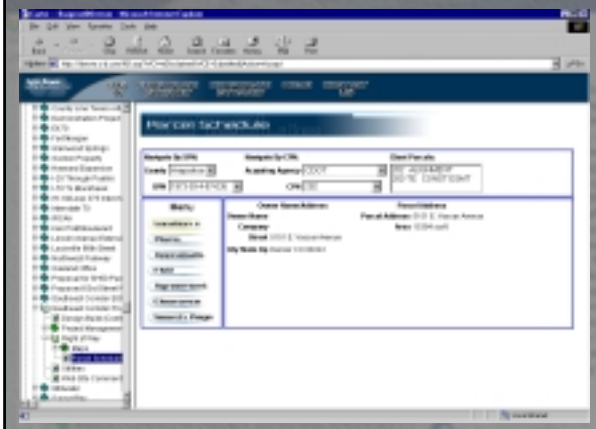
Solution



- Relational Database
- ParcelView
- Parcel Scheduler
  - Technical Design

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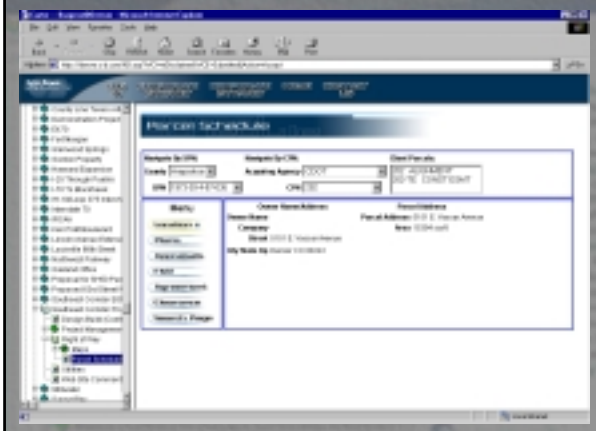
Solution



- Relational Database
- ParcelView
- Parcel Scheduler
  - Technical Design
  - Location

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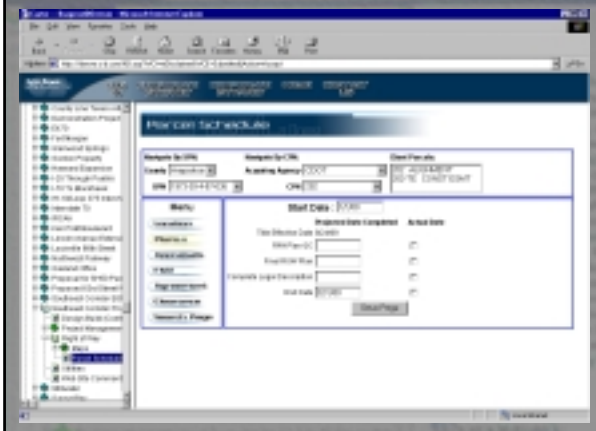
Solution



- Relational Database
- ParcelView
- Parcel Scheduler
  - Technical Design
  - Location
  - Plans

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Solution

- Relational Database
- ParcelView
- Parcel Scheduler
  - Technical Design
  - Location
  - Plans
  - Appraisals

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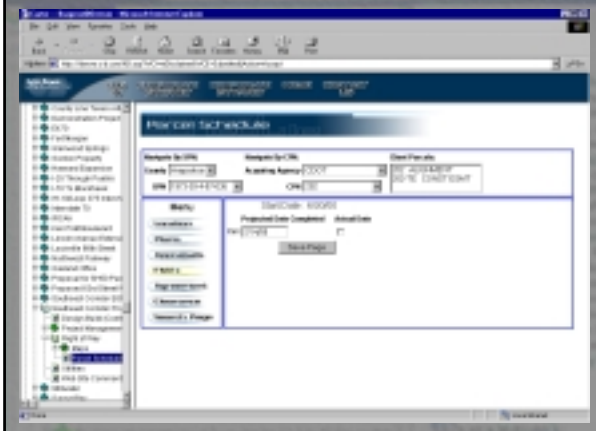
Solution



- Relational Database
- ParcelView
- Parcel Scheduler
  - Technical Design
  - Location
  - Plans
  - Appraisals
  - Fair Market Value

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Solution

- Relational Database
- ParcelView
- Parcel Scheduler
  - Technical Design
  - Location
  - Plans
  - Appraisals
  - Fair Market Value
  - Agreement

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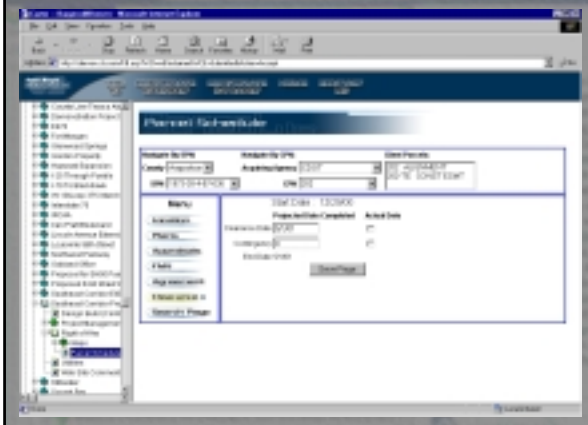
Solution



- Relational Database
- ParcelView
- Parcel Scheduler
  - Technical Design
  - Location
  - Plans
  - Appraisals
  - Fair Market Value
  - Agreement

  - Clearance

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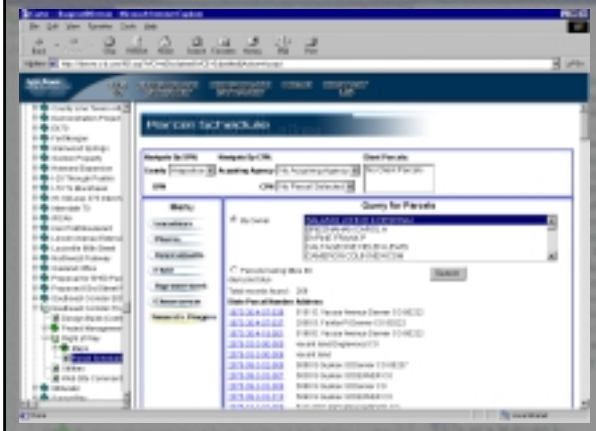
Solution



- Relational Database
- ParcelView
- Parcel Scheduler
  - Technical Design
  - Location
  - Plans
  - Appraisals
  - Fair Market Value
  - Agreement
  - Clearance
  - Search

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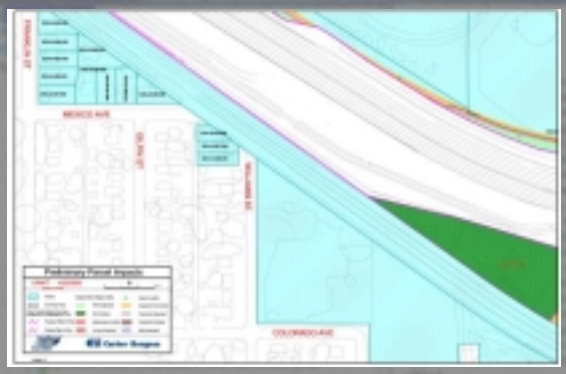
Solution



- Relational Database
- ParcelView
- Parcel Scheduler
- Impact Maps
  - Arc/Info polygon coverage
    - State Parcel Number
  - Project limits polygon coverage
    - Project feature
  - Arc/Info for analysis
  - ArcView for mapping

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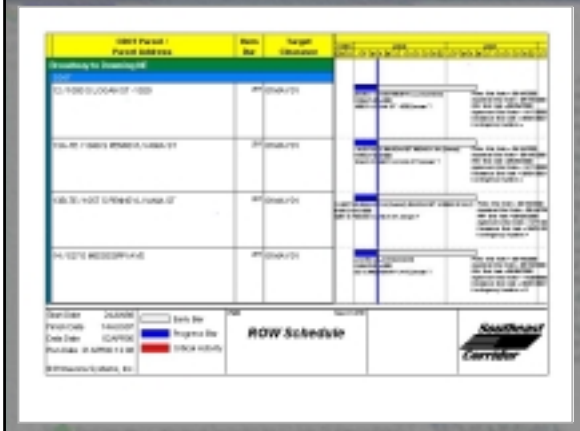
Solution



- Relational Database
- ParcelView
- Parcel Scheduler
- Impact Maps
- Project Schedule
  - Export tabular data to P3

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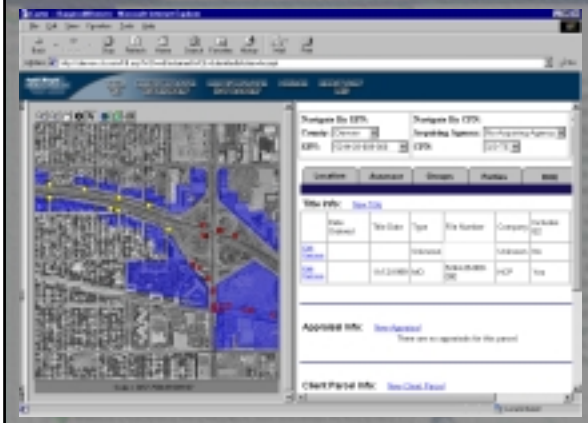
Solution



- Relational Database
- ParcelView
- Parcel Scheduler
- Impact Maps
- Project Schedule
- Web-based Maps
  - VB Application
    - Map Objects IMS
    - Database driven
  - Java Application
  - HTML Form

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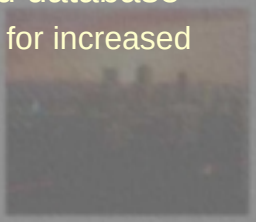
Future Development

- Tighter coupling between GIS and database
  - Links from database to Microstation for increased spatial accuracy
  - Geodatabase/SDE
- ArcIMS
- GIS analysis tools



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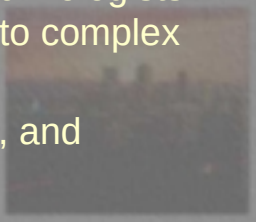
Summary

- Integration of survey team and technologists provides an innovative approach to complex problem
- Efficiency gains, better teamwork, and shortened schedule offset cost of development
- Reuseable



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Contact Information

Matt Erker
Carter & Burgess, Inc.
(303) 820-5231
Erkermw@c-b.com